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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/991,466	11/21/2001	Coming Chen	UMC-98-048 CON	3828
7590	03/04/2004		EXAMINER BARRECA, NICOLE M	
William J. Kubida HOGAN & HARTSON LLP Suite 1500 1200 17th Street Denver, CO 80202			ART UNIT 1756	PAPER NUMBER

DATE MAILED: 03/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/991,466

Applicant(s)

CHEN ET AL.

Examiner

Nicole M. Barreca

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 4-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 4-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☒ Certified copies of the priority documents have been received in Application No. 09/075,618.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

1. The request filed on 1/20/04 for a Continued Prosecution Application (CPA) under 37 CFR 1.53(d) based on parent Application No. 09/991,466 is acceptable and a CPA has been established. An action on the CPA follows.
2. Claims 4-10 are pending in this application.

Response to Amendment

3. The previous rejection over Jang (6,004,863, filed 5/6/98) has been withdrawn in view of the proper submission of the certified translation of TW priority document 87105966 (filed 4/18/98).
4. Applicant's arguments, see p.3-4, filed 11/25/03, with respect to the rejection(s) of claim(s) 4-10 under 35 USC 101 statutory double patenting have been fully considered and are persuasive. (The applicant argued that the claims of the present application lack explicit limitations found in the patent (i.e. are broader than the claims) and therefore they are not the same in scope.) Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Chen (5958795) under non-statutory obvious-type double patenting.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 4, 6, and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Gocho (5498565).

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7. Gocho discloses a method for trench isolation. Silicon nitride 23 is formed on substrate 1 as part of etching stopper layer 2. The semiconductor substrate additionally includes wide trench 41, wide protrusion material 1, narrow trenches 42-43 and narrow protrusions 5e and 5f. Silicon oxide is used as the burying material, filling the trenches and forming burying material 5d over wide protrusion region and burying material 5e and 5f over narrow protrusion regions. Resist 3 is patterned to cover the edge portions of the large active regions and small active regions and then used as a mask to etch oxide layer 5d on wide protrusion region 1. Fig.2(c) illustrates oxide layer 11 remaining on the small active regions and oxide layer portions 50 remaining on the edges of large active region. The remaining silicon oxide burying material is then planarized by an etch back until the silicon nitride layer is exposed. Fig. 2(d) illustrates the oxide being substantially the same level as the silicon nitride layer (see ex.2, col.10, 13-col.11, 42).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 5 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gocho as applied to claims 4 or 8 above, and further in view of Tran (6046106).

10. Gocho does not disclose forming the oxide layer using high density chemical vapor deposition (HDP-CVD). Tran teaches that HDP-CVD exhibits superior gap filling properties and high stability when compared to conventionally deposited oxides (col.2,

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65-col.3, 8). It would have been obvious to one of ordinary skill in the art deposit the oxide layer using HDP-CVD in the method of Gocho because Tran teaches that HDP-CVD exhibits superior gap filling properties and high stability when compared to conventionally deposited oxides.

11. Claims 7 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gocho as applied to claims 4 or 8 above, and further in view of Chen (US 5,969,425).

12. Gocho planarized the oxide layer by etching and does not disclose planarizing the oxide layer using chemical mechanical polishing (CMP). Chen teaches that a dielectric layer such as an oxide is conventionally planarized using etching or CMP (col.1, 35-42). It would have been obvious to one of ordinary skill in the art to planarized the oxide layer using CMP, instead of etching, in the method of Gocho because Chen teaches that etching and CMP are both conventional methods used in the art to planarized an oxide layer.

Double Patenting

13. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

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14. Claims 4-10 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-7 of U.S. Patent No. 5958795. Although the conflicting claims are not identical (the scopes are different), they are not patentably distinct from each other because all limitations of the application claims are recited by the patent claims. As stated by the applicant in the remarks on 11/25/03, the claims of the application lack explicit limitations found in the patent claims. However since the application claims are therefore broader the patent claims, the application claims are anticipated by the patent claims, as taught by *In re Goodman*, and are not patentably distinct.

Conclusion

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nicole M. Barreca whose telephone number is 571-272-1378. The examiner can normally be reached on Monday-Thursday (8:00 am-6:30 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 571-272-1385. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Nicole M. Barreca
Examiner
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2/24/04